European Research Studies Journal
Volume XXI, Issue 2, 2018

pp. 650-664

Determining the Efficiency and the Level of Innovative Development in Agriculture: The Case of Kazakhstan

D. Rustemov[1]*, M. Abikayeva[1*], G. Rakhimova[2], A. Omarkozhayeva[2], A. Temirova[2]

Abstract:

The purpose of this article is to calculate the integral effectiveness of the innovation activity of Kazakhstani agribusiness.

The study helps to make a decision on the innovative development of agricultural production sectors and assess precisely the effectiveness of innovative projects.

Moreover, the algorithm of the integrated process of making a decision on the financing of innovative projects in the agricultural sector as well as components of the integral effect of innovation activity in the agrarian sector were developed.

Keywords: *Agribusiness, Republic of Kazakhstan, innovation development, innovation efficiency, innovation activity.*

JEL Codes: *Q18, O13.*

[1]*Business School, Kazakh-British Technical University, Almaty, Kazakhstan*
[2]*JSC «Financial academy», Astana, Kazakhstan*
**Corresponding author: e-mail: m.abikaeva@mail.ru*

1. Introduction

The agro-industrial sector of the Republic of Kazakhstan unites all branches of the economy that take part in the production of agricultural products, processing it and bringing it to the consumer. Its significance is not only in ensuring the state's food security, but also for the fact that it significantly affects the employment of the population and the effectiveness of all national production. Kazakhstan, because of its inherent natural, climatic and geographical characteristics, as well as the specific conditions and traditional labor skills of the indigenous population, has long been considered one of the largest livestock countries. Today, Kazakhstan faces a new task: to enter the 30-th competitive countries of the world. To do this, Kazakhstan has all the possibilities: a large territory, resources, minerals that attract investors, legislation that protects the rights and freedoms of business entities in Kazakhstan, and the interests of foreign capital. For many years, organizations such as the World Economic Forum (WIF/WEF), the International Institute for Management Development (IMD), the World Bank (World Bank) have been assessing the competitiveness of different countries throughout the world (Nikolaeva *et al.,* 2015). The world's leading ranking of the competitiveness of the world is the annual report of the Global Competitiveness Index (GCI/GEC).

For more than 35 years, the World Economic Forum has compiled an annual country competitiveness rating, which is published in the annual Global Competitiveness Report. The Global Competitiveness Index of the World Economic Forum (GEF/ WEF) is one of the authoritative international ratings and participation in it is very important, as it represents an independent assessment of the economic development of the states of the world (Burkaltseva *et al.*, 2017; Srinita, 2017). It should be noted that the number of countries varies from year to year. So in GIC 2016-2017 the number of countries evaluated was 138 (in the rating of last year 140 countries) (Tekenov *et al.*, 2017). At the same time, the criteria for participating in the ranking are the availability of the survey results and their representativeness, as well as the participation of respondents from the private sector is an important factor.

The relevance of this topic is to calculate the integrated effectiveness of innovative activities of the agricultural sector of the Republic of Kazakhstan. The study helps to make a decision about the innovative development of agricultural production sectors and accurately assess the effectiveness of innovative projects. The objectives of the study include the definition of an algorithm for an integrated decision-making process on the financing of innovative projects in the agricultural sector, and the identification of components of the integrated effect of innovation in the agricultural sector (Kovalenko *et al.,* 2016).

2. Data and methodology

In 2017, the global innovation index of Kazakhstan was equal to 31.25 points, which corresponds to the 82nd position in the world ranking. According to the ranking,

Kazakhstan is among the countries with an upper middle income level (26th position). The efficiency factor equals to 0.53 (124th position). The innovation ranking sub-index is as follows:

- input: 40.98 points with the 75th position (Central and South Asian region - 1st position);
- output: 21.52 points with the 105th position (Central and South Asian region - 5th position).

At the same time, Kazakhstan ranks second among the Central and South Asian countries in the field of innovations (Table 1) (Moldakenova *et al.*, 2017).

Table 1. *Regional leaders in the field of innovations*

Regional rating	Country	GII rating in 2017
Central and South Asia		
1	India	81
2	Kazakhstan	82
3	**Sri-Lanka**	**85**

Source: *The Table 1 was created based on the data from Global Innovation Index (2017*).

GII is calculated as an average value of two sub-indices. The first sub-index is based on the initial data of national economies, which represents a wide range of innovative drivers and outcomes: 1) institutional indicators; 2) human capital and research; 3) infrastructure; 4) market; 5) business development. The second sub-index reflects the actual innovative outcomes: the output of knowledge, technology and creative potential. The innovation efficiency factor is defined as a ratio of the output sub-index ratio to the input one.

In general, over the last ten years the internal operating expenses for research and developments in Kazakhstan have increased slightly - 1.5 times (Table 2). In the agricultural sector the growth rate during that period was significantly higher - 3.5 times. In addition, percentage of costs in the agricultural sector also increased as compared to other industries: in 2004 - 26.8%, in 2014 - 58.3%. In terms of industry sectors, in 2004 leading positions were held by technical sciences, in 2014 agricultural sciences ranked first and left behind other sectors by a significant margin.

Indicators of innovation activity of enterprises in Kazakhstan evidence a slight increase in its share over the last three years - 6.6% (Table 3). In terms of industry sectors, leading positions were held by the machine-building and pharmaceutical industries, and three years later the first and second positions were taken by the nuclear and machine-building industries, respectively. In 2015, innovation activity of agricultural enterprises moved from the seventh position to the sixth position, but then it moved back to the seventh position (Sansyzbayeva and Zhidebekkyzy, 2015).

Thus, despite the considerable internal operating expenses in the field of agricultural scientific research and development as compared to other economy sectors, innovation activity of agricultural enterprises is very low. Determination of causes of this situation requires the dynamic analysis of introduction of agricultural science and innovation activities into the agricultural sector of Kazakhstan.

Table 2. *Internal operating expenses for research and development by sciences*

Sciences	2006	07	08	09	10	11	12	13	14	15	2016
Internal operating expenses, total	145.7	63.7	68.3	94.3	131.1	129.8	112.1	101.9	210.5	209.6	236.3
including:											
natural	15.9	12.1	14.4	11.3	23.4	34.3	38.7	13.6	63.3	79.8	47.1
technical	89.6	0.2	0.1	0.3	5.3	7.3	-	-	30.3	39.6	43.7
medical	1.2	6.9	7.9	5.2	-	-	-	63.8	-	-	3.2
agricultural	39.0	38.8	42.6	77.5	82.5	85.9	73.4	17.9	115.6	85.6	137.7
social	-	3.0	1.5	-	18.0	1.6	-	-	-	3.0	3.0
liberal	-	2.7	1.8	-	1.9	0.7	-	6.6	1.3	1.6	1.6

Source: *The Table 2 was created based on the data from official website of the Statistics Committee of the Republic of Kazakhstan: http://stat.gov.kz*

Table 3. *Indicators of innovation activity of enterprises in Kazakhstan*

Indicator	**2015**	**2016**	**2017**
Share of innovation-active enterprises of the number of operating ones, %	7.6	8	8.1
Share of innovation-active enterprises of the number of operating enterprises by economy sectors, %		10.9	11.2
oil and gas sector	9	16.5	12.5
mining and smelting industry	15	16.3	15.9
chemical industry	28	33.3	47.1
nuclear industry	18	30.4	27.3
machine-building industry	36	14.3	19.1
pharmaceutical industry	30.2	4.2	3.7

building industry	5	11.2	11.4
Agro-industrial complex	13	13.1	11.1
consumer goods industry	10	17.0	17.4
information and communication technology	19		

Source: *The Table 3 was created based on the data from official website of the Statistics Committee of the Republic of Kazakhstan:* http://stat.gov.kz

Kazakhstan provides for a considerable growth for all indicators of introducing the results of agrarian science into the agriculture, which stipulates the improvement of the agricultural technology transfer and commercialization system for activation of innovation activity in the agro-industrial complex (Table 4).

Table 4. *Indicators of introduction of the agrarian scientific results*

Indicator description	**Year of implementation**							
	2013	2014	2015	2016	2017	2018	2019	2020
Number of implemented scientific developments with the state support, units	0	0	17	20	22	24	26	28
Entities of the agro-industrial complex - receivers of educational and consulting services and the results of agricultural science, units	2,375	10,193	11,567	12,891	14,340	15,614	17,238	20,562
Number of implemented innovative projects in the field of transfer and commercialization of agricultural technologies, units	2	12	15	18	21	24	27	30

Source: *The Table 4 was created based on the data from State Program for development of the agro-industrial complex of the Republic of Kazakhstan for 2013-2020 (2012)*

At the same time, the volume of research funding in the agricultural sector (about 3.3 billion tenge per year) is insufficient. The staff of the industrial holding of KazAgroInnovation JSC (KAI) is comprised of more than 1.3 thousand people, including 60% of scientists having an academic degree, whose average age is 46.7 years old, which indicates the aging of the scientific staff. However, motivation for improvement of labor effectiveness remains at a low level. There is a considerable material and technical base, which includes more than 280 thousand hectares of land, buildings and facilities with an area of more than 900 thousand square meters, about 3 thousand units of agricultural machinery and other assets. At the same time, a major part of the infrastructure is a scientifically and technically outdated. There are difficulties of introducing the scientific research results: a system of knowledge dissemination and transfer of advanced foreign technologies are underdeveloped;

demand for innovation developments is very low. These problems indicate the need for reforming the agricultural science.

However, the level of practical introduction of innovations into the agricultural production is very low. For example, 200 new high-yield varieties and hybrids of agricultural crops were created during the period of 2006-2008 and passed the variety testing as well as 70 vaccines and drugs were developed, but half of them has been presented so far only in scientific reports.

In addition, effective demand for scientific and innovative developments on the part of the agrarian sector is also at the low level. This is also explained by the fact that only half of the agricultural enterprises are solvent and creditworthy. According to expert estimates, every year, up to 80% of scientific research results are not demanded and, therefore, they are not introduced into the agrarian sector **(**Development of the Strategy of the Agricultural Technology Transfer and Commercialization Centre, 2006). We summarized innovation activities in the agricultural sector over the last five years (Table 5).

Table 5. *Results of innovation activities in the agricultural sector of Kazakhstan*

Result	**2013**	**2014**	**2015**	**2016**	**2017**
Created and transferred for the state variety testing:	103 varieties and hybrids of agricultural crops (plan figure -30)	39 varieties and hybrids of agricultural crops	42 varieties and hybrids of agricultural crops	110 varieties and hybrids of agricultural crops	30 varieties and hybrids of agricultural crops
Environmental testing carried out for:	more than 300 of the best varieties of foreign selection	more than 2000 varieties and hybrids of domestic and foreign selection crops			Phytosanitary risk analysis for 72 quarantine hazardous organisms
Created and submitted applications for approbation of:	17 breeds, types and lines of animals and birds	208 samples of sheep breeds, 3 recipes of feed compounds, 1 for starlet	4 breeds, types and lines of agricultural animals		1 breed and 1 line of agricultural animals, bees
In the field of protection and quarantine of plants and animals:	biological preparations of fungal and bacterial origin with high efficiency against pests	2 detergent sanitizers, 5 therapeutic and prophylactic preparations; 5 recommendations, 1 practical seminar in the field of helminthology research; 5 strains	8 therapeutic preparations and vaccines for livestock breeding	11 therapeutic preparations and vaccines for livestock breeding	30 recommendations (plan figure - 30) for techniques in the field of soil management, plant protection and quarantine, forestry, water management and fishery, livestock
In the field of	growing of	study of forest			

forestry:	new pine varieties that allow increasing the plantation productivity	crops and low-value plantations - 2 areas and mountain forests of the Northern Tien Shan			breeding, mechanization and electrification of agriculture, processing and storage of agricultural products
Development of new samples of machinery and equipment	138 techniques	138 techniques, 15 technical documents	12 technical documents	51 recommendations for technology, 9 technical documents	5 technical documents
Patents obtained	192 patents and innovation patents	63 protection documents, including 5 patents for inventions, 40 innovation patents, 18 patents for selection inventions	8 patents; 81 innovation patents; 89 patents for selection inventions	166 protection documents, 83 innovation patents; 72 patents for selection inventions	
Area of introduction of resource- and energy-saving environmentally friendly technology into the agro-industrial complex	11.7 mln. ha	12.4 mln. Ha	12.5 mln. ha	12.9 mln. ha	12.7 mln. ha
Submitted, issued and published	233 recommendations, 2051 scientific publications, 2 training video materials, 59 training aids, 90 training seminars	60 applications for protection documents; 50 collected books and recommendations, 500 scientific publications and theses	90 recommendations, 165 applications for protection documents, 918 scientific publications, 91 books	262 applications for protection documents, 1377 scientific publications, 103 books and recommendations	50 applications for protection documents; 600 articles; 50 books and recommendations

Source: *The data in the Table 5 is systematized and grouped by the author on the basis of the following data: "Applied research in the field of the agro-industrial complex for 2013", **"**Report of the Minister of Agriculture of the Republic of Kazakhstan on implementation of the scientific-technical policy in 2014", "Report of the Minister of Agriculture of the*

Republic of Kazakhstan on implementation of the scientific-technical policy in 2015", "Report of the Minister of Agriculture of the Republic of Kazakhstan on implementation of the scientific-technical policy in 2016", "Report of the Minister of Agriculture of the Republic of Kazakhstan on implementation of the scientific-technical policy in 2017"

Many methods and methodological approaches sum up certain types of effects in order to assess the integral effectiveness. However, this approach does not take into account specific features of various types of effects and the effect of the synergy law. In this regard, our model developed for determining the integral effect on innovation activities would be the most appropriate. We propose the following components of the integral effect (Figure 1).

We cannot but agree with the authors Duka (2004) and Shershenyuk (2005a; 2005b) that the integral effect should take into account systematically the interaction of all types of effects as a result of introduction of a specific innovation at the agricultural enterprise or into the industry-specific production of the agrarian sector. Determination of the forecast value of the integral effect provides a possibility to consider and analyze the mutual influence of effects.

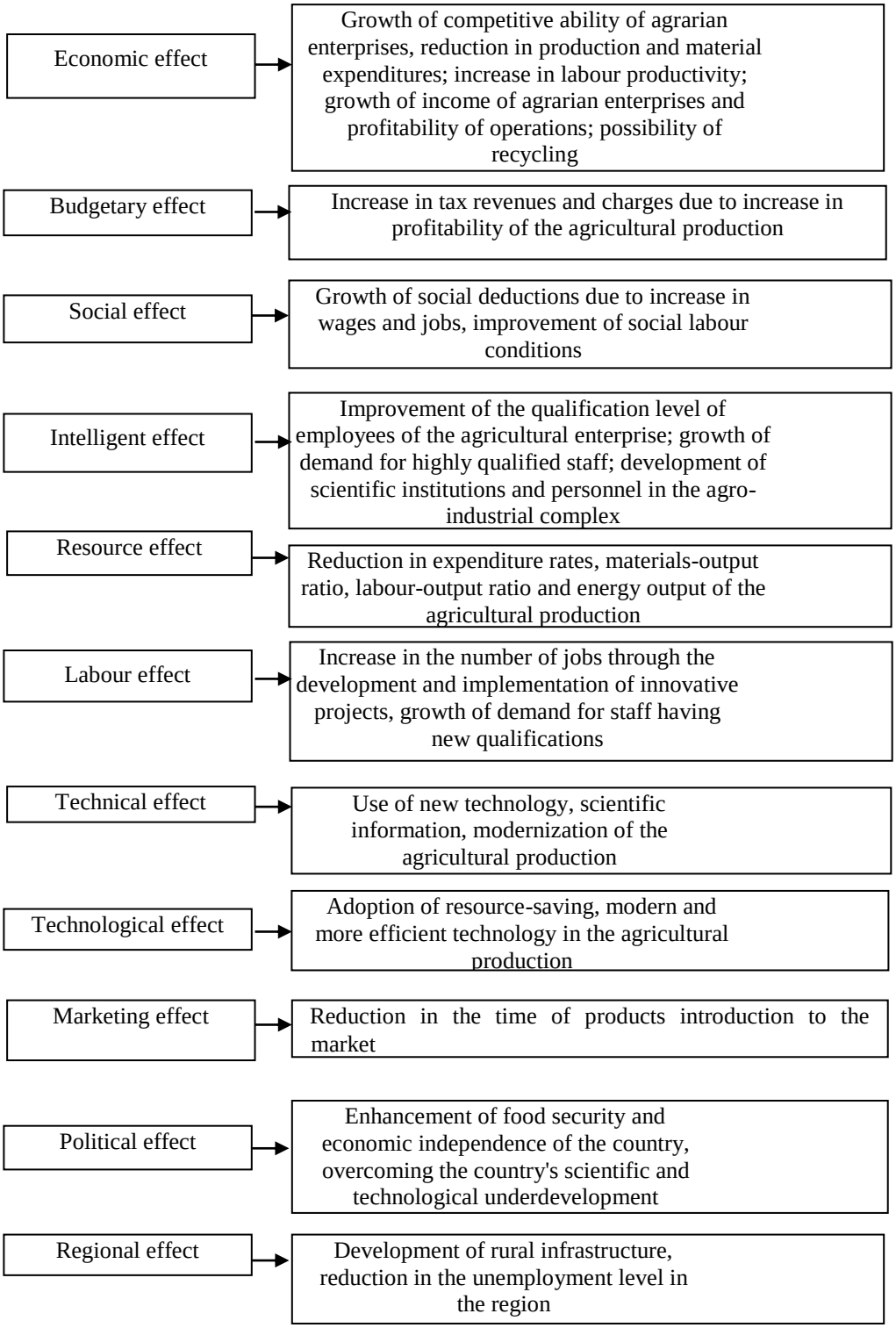
This is confirmed by the fact that all types of the above mentioned effects are interrelated and have mutual influence on each other. Thus, the economic effect leads to the income growth. A high level of profitability of an agricultural enterprise allow increasing employees' wages and improving labor conditions, which are the components of the social effect. These trends also have a reverse effect - growth of labor productivity.

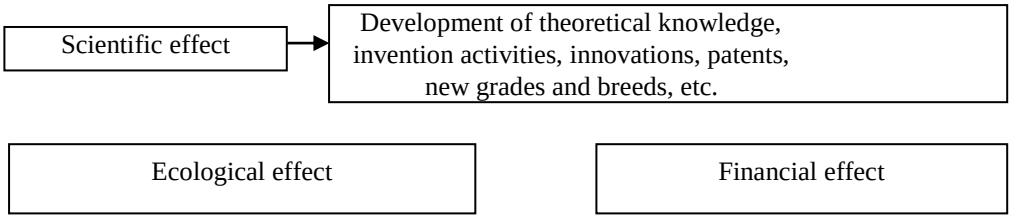
The financial effect is present in the implementation of any project, and it is identical for investment projects in any economy sector. This effect is determined by calculating the financial indicators of investment projects (net present value, rate of return, profitability index, payback period, etc.). In this regard, we will not pay special attention to this effect in this work.

In connection with the sectoral-specific features of the agriculture, the environmental effect is the most significant in the innovative development of the agrarian sector and includes the highest number of components: increase in deductions for environmental protection measures; improvement of health of employees and population in rural areas; financing of the environmental component; improvement of environmental friendliness of products and production; reduction in the level of water, soil, air pollution, emissions to air, water, soil, and the amount of production waste; environmental safety enhancement in the region; use of recyclable waste.

The technological effect is the result of research and development works. It represents the emergence of new technologies and can be expressed in the results of their introduction into the agricultural production. It is also expressed in scientific discoveries, patented inventions, publications, thesis works, etc.

Figure 1. *Components of the integral effect of the innovation activity in the agrarian sector*





Source: *Author's own computations.*

Its quantitative assessment is quite difficult, as the results are evaluated indirectly through the recognition by the scientific communities, the state, direct consumers, and identified on the basis of various ratios of the considered effects. Similarly, it is difficult to quantify the scientific effect, which is expressed in the same parameters as the technological one.

The budgetary effect for the state consists in the growth of tax revenues and various charges, the amount of which increases with the growth of the enterprise profitability and production volumes. Besides, deductions for social actions also grow due to increase in wages. Increase in respective budget revenues allows increasing deductions for environmental protection and social programs, which will provide the ecological and social effects. The methodology of calculation of effects of innovation activities is given in Table 6. Net integral effect of the innovation activity is defined using the formula:

$$Ei = \sum_{i=1}^{n} - Inv \quad (1)$$

where: Ei – the value of *i*- component of the integral effect;
Inv – amount of investment;
n – number of innovation effects of the innovative project implementation.

3. Results

Under the existing circumstances, most of agricultural enterprises are not able to fund investment and innovative projects. Besides, high interest rates on bank loans do not contribute to the widespread use of this source. The state should act as a major investor, however, in conditions of a permanent state budget deficit the state is unable to participate actively in the innovative development of the agricultural sector. In this regard, commercial financing sources become relevant. In this aspect, we propose to distinguish the following three categories of investors in the author's scheme of the integrated process of making a decision on funding the innovative projects (programs): potential participants, the state and potential investors. Thus, the process of making a decision on funding the innovative projects based on the integral efficiency assessment can be represented as follows (Figure 2).

Table 6. *Calculation mechanism of integral efficiency of the innovative development of the agro-industrial complex*

Components of the integral effect	Calculation formula	Symbols
Economic effect	$Lp^+ = Lp_{af} - Lp_{pr}$ $Ca^+ = Ca_{af} - Ca_{pr}$ $I^+ = I_{af} - I_{pr}$ $R = Inv / C$ $NPV = \sum_{i=1}^{T} \frac{Ii - Expi}{(1+r)^t} - \sum_{i=1}^{T} \frac{Kt}{(1+r)^t}$	Lp^+ – labor productivity growth; Lp_{af} – labor productivity after the project implementation; Lp_{pr} – prior to the project implementation; Ca^+ – growth of competitive ability; Ca_{af} – competitive ability after the project implementation; Ca_{pr} – prior to the project implementation; I^+ – income growth; I_{af}– income after the project implementation; I_{pr} – prior to the project implementation; Rr – return rate; Inv – investment benefits and revenues; C – current investment cost; NPV – net present value; Ii – gross income at i-phase of the project; Expi – gross expenditure at i-phase of the project; *r* – discount rate; T – project term
Ecological effect	$Ch^+ = Ch_{af} - Ch_{pr}$ $Wp^+ = Wp_{af} - Wp_{pr}$ $Fin^+ = Fin_{af} - Fin_{pr}$	Ch^+ – growth of environmental charges; Ch_{af} – environmental charge after the project implementation; Ch_{pr} – prior to the project implementation; Wp^+ – growth of expenses for disposal and processing of production waste; Wp_{af} – expenses after the project implementation; Wp_{pr} – expenses prior to the project implementation; Fin^+ – increase in financing, Fin_{af} – financing after the project implementation, Fin_{pr} – prior to the project implementation
Budgetary effect	$Rt^+ = Rt_{af} - Rt_{pr}$	Rt^+ – growth in tax revenues for the treasury; Rt_{af} – tax revenues for the treasury after the project implementation; Rt_{pr} – prior to the project implementation
Social effect	$Ds^+ = (Ji^+ \times Wi) \times Ds$	Ds^+ – growth of deductions for social actions; Wi – average wage amount; Ds – amount of social contributions; i – job type; Ji^+– increase in the number of jobs as a result of the innovative project implementation
Intellectual effect	$Pi^+ = Pi_{af} - Pi_{pr}$	Pi^+ – increase in the intellectual property; Pi_{af} – amount of the intellectual property of an agricultural enterprise after the project implementation; Pi_{pr} – prior to the project implementation

Resource effect	$Exp^{-} = Exp_{af} – Exp_{pr}$	Exp^{-} – reduction in expenditure rates, materials-output ratio, labor-output ratio and energy output of the agricultural production; i – type of expenditures (labor, energy, fuel, raw and other materials, consumable supplies, etc.); Exp_{af} – value of production expenditures after the project implementation; Exp_{pr} – prior to the project implementation
Labor effect	$J^{+} = J_{af} - J_{pr}$ $Kn^{+} = Kn_{af} - Kn_{pr}$	J^{+}– increase in the number of jobs due to the innovative project implementation; J_{af} – number of jobs after the project implementation; J_{pr} - prior to the project implementation; Kn^{+} – growth of scientific technical and technological knowledge of the personnel; Kn_{af} – value of knowledge after the project implementation; Kn_{pr} – prior to the project implementation
Technical effect	$Rcl^{+} = Rcl_{af} - Rcl_{pr}$ $Rr^{+} = Rr_{af} - Rr_{pr}$ $Ep^{+} = Ep_{af} - Ep_{pr}$	Rcl^{+} – growth of the capital/labor ratio; Rcl_{af} – capital/labor ratio after the project implementation, Rcl_{pr} – capital/labor ratio prior to the project implementation; Rr^{+} – growth of the return on assets ratio; Rr_{af} - return on assets ratio after the project implementation; Rr_{pr} – prior to the project implementation; Ep^{+} – growth of equipment productivity; Ep_{af} – equipment productivity after the project implementation; Ep_{pr} – prior to the project implementation
Marketing effect	$Tr^{+} = Tr_{af} - Tr_{pr}$	Tr^{+} – reduction in time of the products introduction to the market; Tr_{af} – time of the products introduction to the market after the project implementation; Tr_{pr} – prior to the project implementation
Political effect	$Fs^{+} = Fs_{af} – Fs_{pr}$ $Ie^{+} = D_{pr} – D_{af}$ $STd^{+} = STd_{af} - STd_{pr}$	Fs^{+} – increase in food security in the country; Fs_{af} – food security of the country after the project implementation; Fs_{pr} – prior to the project implementation; Ie^{+} – level of country's economic independence in terms of agricultural products; D_{pr} – level of dependence prior to the project implementation; D_{af} – after the project implementation; STd^{+} – increase in the level of scientific and technological development of the country; STd_{af} – level of scientific and technological development of the country after the project implementation; STd_{pr} – prior to the project implementation
Regional effect	$Ur^{-} = Ur_{af} – Ur_{pr}$ $Rin^{+} = Rin_{af} - Rin_{pr}$	Ur^{-} – reduction in the unemployment rate in the region; Ur_{af} – unemployment rate in the region after the project implementation; Ur_{pr} –

		unemployment rate in the region prior to the project implementation; Rin^{+} – growth of rural infrastructure; Rin_{af} – number of infrastructure facilities after the project implementation; Rin_{pr} – prior to the project implementation

Source: *Author's own computations.*

The calculated integral effectiveness of innovation activity provides a possibility to make a decision on the innovative development of agricultural production sectors and assess precisely the effectiveness of innovative projects.

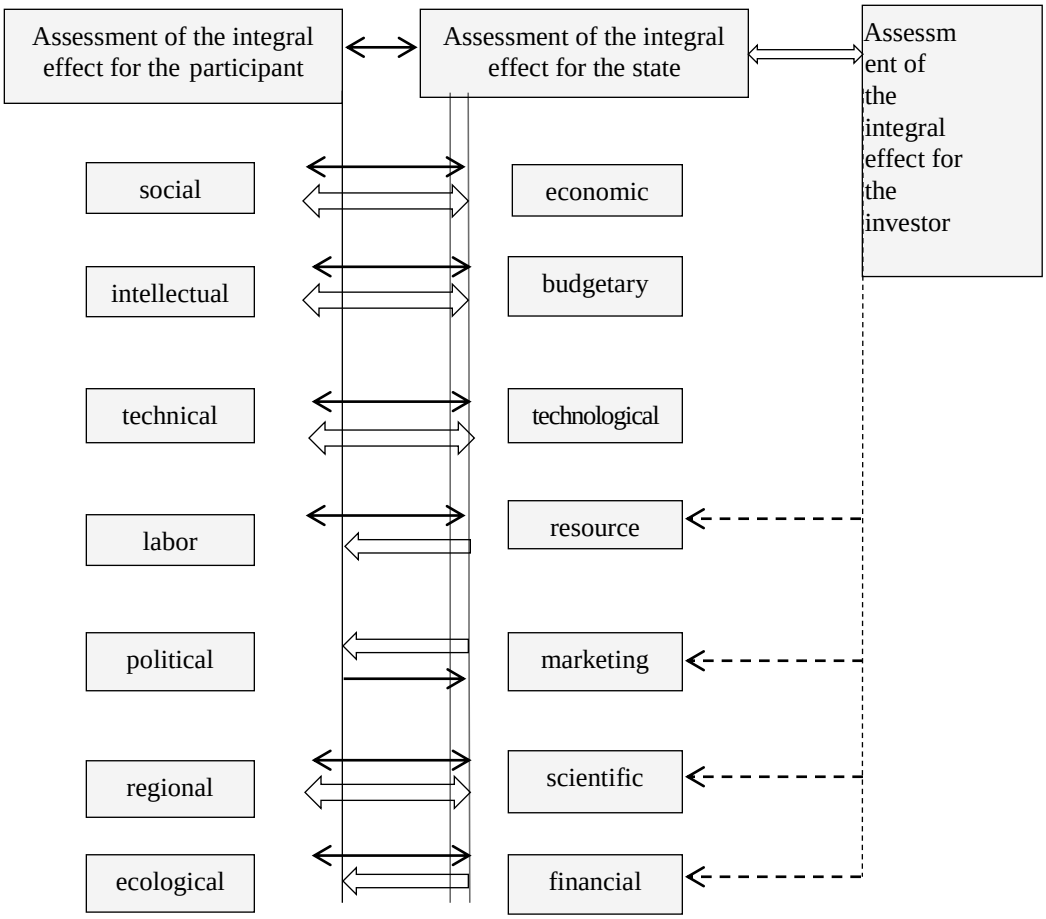
4. Conclusion

Thus, it is necessary to develop a mechanism for monitoring and stimulating the innovative activity of agribusiness, to assess the effectiveness of innovative development of agro-industrial enterprises in the innovative infrastructure of the Republic of Kazakhstan. Assessing the effectiveness of innovative development of agribusiness, it should be noted that its main factors are: the achievement of goals, innovation (quality of functioning), rationality of innovation changes (profitability); change of technical and technological base of agro-industrial production; changes in the quality of work; external socio-economic conditions. Specific indicators of the quality of the decision regarding the assessment of the effectiveness of innovative

development of regional agribusiness are: a temporary lag in the decision-making process; timeliness of determining the need for solutions; analysis of the importance of the solution; detail and clarity of the basic data; availability of reserves in the decision-making process.

It should be noted that the essence of the interaction of the administration of public innovation in the agro-industrial sector, on the one hand, state and local self-government, on the other, means that the state effectively regulates the innovative development of the agricultural sector of the country in connection with the establishment of organizational, legal and economic norms, which bodies of state and local self-government are free to make decisions related to the choice of a specific form of innovation agribusinesses in the region. Proceeding from the foregoing, state and local government innovations in agro-industrial enterprises carry out the innovative process of agribusiness enterprises directly in their ownership.

Figure 2. *Algorithm of the integrated process of making a decision on funding the innovative projects in the agricultural sector*



Source: Author's own computations.

References:

Burkaltseva, D.D., Sivash, O.S., Boychenko, O.V., Savchenko, L.V., T.N. Bugaeva, T.N., Zotova, S.A. 2017. Realization of Investment Processes in the Agricultural Sector of the Digital Economy. European research Studies Journal, 20(4B), 366-379.

Cornell University, INSEAD, and WIPO (2015). The Global Innovation Index 2015: Effective Innovation Policies for Development. Fontainebleau, Ithaca, and Geneva.

Development of the Strategy of the Agricultural Technology Transfer and Commercialization Centre (2006). Report on the first phase of the project "Selection of priority technological areas". - Almaty: Institute of Economics of the Ministry of Education and Science of the Republic of Kazakhstan, 38 p.

Duka, A.P. 2004. Financial support of scientific-technical and innovative activity, Finances of Ukraine, 11, p. 40-47.

Konyrbekov, M.Zh. 2017. Analysis of the current state and major problems of innovative

development of the agro-industrial complex of the Republic of Kazakhstan, as well as the role of public authorities in its development. Ph.D. Cand. Dissertation, Almaty.

Kovalenko, E.G., Yakimova, Y.O., Avtaykina V.E. and Zaytseva, O.O. 2016. Problems and Mechanisms of Sustainable Development of Rural Areas (at the example of the Republic of Mordovia). European Research Studies Journal, 19(3) Part A, 110-122.

Moldakenova, Y., Kirdasinova, K., Tolysbayev, B., Mutaliyeva, L., Baitenova, L., Demessinov, T. and Konuspayev, R. 2017. Modern approaches of management of Kazakhstan agribusiness. Espacios, 38(46), 9.

Nikolaeva, J.V., Bogoliubova, N.M. and Shirin, S.S. 2015. Ecological tourism in the state image policy structure: Experience and problems of modern Russia. Current Issues in Tourism, 21(5), 547-566, https://doi.org/10.1080/13683500.2015.1100588.

Official website of the Statistics Committee of the Republic of Kazakhstan, http://stat.gov.kz.

Sansyzbayeva, Kh. and Zhidebekkyzy, A. 2015. Overview of the Kazakhstan's Agro-Industrial Complex and Pestle Analysis for Its Sustainable Development. Proceedings of 9th Asia-Pacific Business Research Conference 5 - 6 November, Bayview Hotel, Singapore.

Shershenyuk, Ye.N. 2005a. Methodological approach to calculation of the integral effect of innovations. Business-Inform, 1(2), 33-37.

Shershenyuk, Ye.N. 2005b. Challenges of integral effect assessment of innovative projects. Business-Inform, 7(8), 49-51.

Srinita. 2017. Economic and Consumption Distribution and Business Strategy Toward Improvement of Agricultural Industry. European Research Studies Journal, 20(4A), 175-193.

State Program for development of the agro-industrial complex of the Republic of Kazakhstan for 2013-2020. 2012. Astana, Kazakhstan.

Tekenov, U. A., Daurenbekova, A.N. and Konyrbekov, M.Zh. 2017. Current state and prospects of development agrarian and industrial complex of the animal husbandry industry in Kazakhstan. Espacios, 38(49), 19.